

## **REGULATION III - CONTROL OF AIR CONTAMINANTS**

### **RULE 351 LOADING OF ORGANIC LIQUIDS**

#### **INDEX**

#### **SECTION 100 - GENERAL**

- 101 PURPOSE
- 102 APPLICABILITY

#### **SECTION 200 - DEFINITIONS**

- 201 BULK PLANT
- 202 BULK TANK
- 203 BULK TERMINAL
- 204 DELIVERY VESSEL
- 205 DISPENSING TANK
- 206 EXCESS ORGANIC LIQUID DRAINAGE
- 207 FUGITIVE LIQUID LEAK
- 208 GAS TIGHT
- 209 GASOLINE
- 210 GASOLINE DISPENSING OPERATION
- 211 LOADING FACILITY
- 212 OFFSET FILL LINE
- 213 ORGANIC LIQUID
- 214 STATIONARY STORAGE TANK
- 215 SUBMERGED FILL PIPE
- 216 SWITCH LOADING
- 217 TRUE VAPOR PRESSURE (TVP)
- 218 VAPOR COLLECTION/PROCESSING SYSTEM
- 219 VAPOR LOSS CONTROL DEVICE

220 VAPOR TIGHT

**SECTION 300 - STANDARDS**

- 301 GENERAL REQUIREMENTS FOR LOADING FACILITIES
- 302 OPERATING REQUIREMENTS FOR VAPOR LOSS CONTROL DEVICES
- 303 REPAIR AND RETESTING REQUIREMENT
- 304 EQUIPMENT MAINTENANCE AND OPERATING PRACTICES
- 305 EXEMPTIONS

**SECTION 400 - ADMINISTRATIVE REQUIREMENTS**

- 401 EQUIPMENT LEAKS
- 402 COMPLIANCE SCHEDULE

**SECTION 500 - MONITORING AND RECORDS**

- 501 LEAK DETECTION - TEST PROCEDURE
- 502 COMPLIANCE INSPECTIONS
- 503 RECORDS RETENTION
- 504 COMPLIANCE DETERMINATION - TEST METHODS

**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS**

**REGULATION III - CONTROL OF AIR CONTAMINANTS**

**RULE 351  
LOADING OF ORGANIC LIQUIDS**

**SECTION 100 - GENERAL**

- 101 PURPOSE:** To limit emissions of volatile organic compounds from the loading of organic liquids.
- 102 APPLICABILITY:** This rule is applicable to the transfer of organic liquids having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual loading conditions. It regulates transfers at bulk terminals and bulk plants from stationary storage tanks to delivery vessels and from delivery vessels to stationary storage tanks.

**SECTION 200 - DEFINITIONS:** For the purpose of this rule, the following definitions shall apply:

- 201 BULK PLANT** - Any loading facility at which gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual storage conditions are received from delivery vessels for storage in on-site stationary tanks, and from which such liquids also are transferred to delivery vessels.
- 202 BULK TANK** - Any stationary storage tank serving a loading rack which loads delivery vessels with organic liquids.
- 203 BULK TERMINAL** - Any primary distributing loading facility which has ever received in any consecutive 30-day period over 600,000 gallons (2,271,180 l) of gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual storage conditions; or any loading facility where delivery of such liquids to the facility is primarily by pipeline.
- 204 DELIVERY VESSEL** - Any vehicular-mounted container such as a railroad tank car, tanker truck, tank trailer or any other mobile container used to transport organic liquids.

- 205 DISPENSING TANK** - Any stationary tank which dispenses organic liquid fuel directly into the fuel tanks of motor vehicles including aircraft.
- 206 EXCESS ORGANIC LIQUID DRAINAGE** - More than 10 milliliters (0.34 fluid ounces) per disconnect.
- 207 FUGITIVE LIQUID LEAK** - An organic liquid leak of more than three drops per minute from any single leak source other than the disconnect operation of liquid fill line and vapor line.
- 208 GAS TIGHT** - Having no leak of gaseous organic compound(s) exceeding 10,000 ppm above background when measurements are made using EPA Method 21 with a methane calibration standard.
- 209 GASOLINE** - Any petroleum distillate, petroleum distillate/alcohol blend, petroleum distillate/organic compound blend, or alcohol having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual conditions of storage and handling, and which is used as a fuel for internal combustion engines.
- 210 GASOLINE DISPENSING OPERATION** - All gasoline dispensing tanks and associated equipment located on one or more contiguous or adjacent properties under the control of the same person or persons under common control.
- 211 LOADING FACILITY** - Any operation or facility such as a gasoline storage tank farm, pipeline terminal, bulk plant, or loading dock or combination thereof, where organic liquids are transferred or loaded into or out of delivery vessels for future distribution. Included are all related pollutant-emitting activities which are located on one or more contiguous or adjacent properties, and are under the control of the same person or persons under common control.
- 212 OFFSET FILL LINE** - Any organic-liquid fill line (piping and fittings) which contains one or more bends.
- 213 ORGANIC LIQUID** - Any organic compound which exists as a liquid under any actual conditions of use, transport or storage.
- 214 STATIONARY STORAGE TANK** - Any tank, reservoir or other container used to store, but not transport, organic liquids.
- 215 SUBMERGED FILL PIPE** - Any discharge pipe or nozzle which meets the applicable specification as follows:

- 215.1 Top-Filled Or Bottom-Filled Tanks:** The end of the discharge pipe or nozzle is totally submerged when the liquid level is six inches (15 cm) from the bottom of the tank.
- 215.2 Side-Filled:** The end of the discharge pipe or nozzle is totally submerged when the liquid level is 18 inches (46 cm) from the bottom of the tank.
- 216 SWITCH LOADING -** Loading diesel fuel into a delivery vessel whose previous load was gasoline; or loading any organic liquid not subject to this rule into a delivery vessel whose previous load was an organic liquid subject to this rule.
- 217 TRUE VAPOR PRESSURE (TVP) -** Absolute vapor pressure of a liquid at its existing temperature of storage and/or handling.
- 218 VAPOR COLLECTION/PROCESSING SYSTEM -** A vapor loss control device consisting of a vapor gathering subsystem capable of collecting the organic vapors and organic gases plus a second subsystem capable of processing such vapors and gases, preventing at least 95 percent of the volatile organic compounds entering it from entering the atmosphere.
- 219 VAPOR LOSS CONTROL DEVICE -** Any piping, hoses, equipment, and devices which are used to collect, store and/or process organic vapors at a bulk terminal, bulk plant, service station or other operation handling gasoline and/or other organic liquids.
- 220 VAPOR TIGHT -** A condition where no organic vapor leak reaches or exceeds 100 percent of the lower explosive limit at a distance of one inch (2.5 cm) from a leak when measured with a combustible gas detector or an organic vapor analyzer, both calibrated with propane.

## **SECTION 300 - STANDARDS**

- 301 GENERAL REQUIREMENTS FOR LOADING FACILITIES:** All bulk terminals and plants must have submerged fill pipes in all tanks over 250 gallons (946 l) storing organic liquids, observe designated procedures and be equipped with applicable equipment as follows:
- 301.1 Bulk Terminals:** No person shall load organic liquids having a TVP of 1.5 psia (77.5 mm Hg) or greater into any delivery vessel from a stationary storage tank at a bulk terminal unless the vessel bears a current pressure-test decal issued by the Control Officer and the terminal uses a vapor collection/processing system which reduces the emissions of volatile organic compounds to not more than .08 pounds per 1000 gallons of such liquids transferred (10 grams per 1000 liters). Switch loading shall be subject to this standard. The terminal owner or operator

and the operator of the receiving vessel shall act to ensure that the vapor line is connected before such liquids are transferred.

**301.2 Bulk Plant Tanks Over 250 Gallons (>946 L):**

- a. Transfer To Bulk Plant Tanks:** No person shall transfer gasoline from a delivery vessel into a bulk plant tank exceeding 250 gallons (946 l) capacity unless the delivery vessel bears a current county pressure-test decal and uses a vapor balance system equipped with fittings which are vapor tight; or, alternatively, a vapor loss control system is used which emits to atmosphere less than 0.6 pound of volatile organic compounds per 1000 gallons transferred (72 grams per 1000 liters).
- b. Loading From Bulk Plant Tanks:** No person shall transfer gasoline from a bulk plant tank exceeding 250 gallons (946 l) into a delivery vessel unless both the loading rack and delivery vessel use a vapor balance system equipped with fittings which are vapor tight; or, alternatively, a vapor loss control system is used which emits to atmosphere less than 0.6 pounds of volatile organic compounds per 1000 gallons loaded (72 grams per 1000 liters).

**302 OPERATING REQUIREMENTS FOR VAPOR LOSS CONTROL DEVICES:**

The owner or operator of a vapor loss control device subject to this rule shall operate the device and organic liquid transfer equipment as follows:

- 302.1** Loading shall be accomplished in a manner that prevents gauge pressure from exceeding 18 inches of water (33.6 mm Hg) and vacuum from exceeding six inches of water (11.2 mm Hg) in the tank truck. Each owner or operator of a facility shall act to ensure that any vapor recovery system required by this Rule 351 is connected between the delivery vessel and the storage tank during all organic liquid transfers.
- 302.2** Loading shall be accomplished in a manner that prevents overfills, fugitive liquid leaks or excess organic liquid drainage. Owners or operators of bulk plants or operators of delivery vessels shall observe all parts of the transfer and shall discontinue transfer if any leaks are observed. Measures shall be taken to prevent liquid leaks from the loading device when it is not in use, and to complete drainage before the loading device is disconnected. During loading or unloading operations, potential leak sources shall be vapor tight as demonstrated by the test procedure described in Section 501 of this rule.
- 302.3** Loading operations which use vapor collection/processing equipment shall be accomplished in such a manner that the displaced vapor and air will be vented

only to the vapor collection/processing system, which shall be operated gas-tight and in a manner such that the vapor processing capacity is not exceeded. Diaphragms used in vapor storage tanks shall be maintained gas-tight.

**302.4** Vapor transfer lines shall be equipped with fittings that are vapor tight and that automatically and immediately close upon disconnection. Vapor balance systems shall be designed to prevent any vapors collected at one loading rack from passing to another loading rack.

**303 REPAIR AND RETESTING REQUIREMENT:** Except as superseded by Division actions pursuant to the procedures of Rule 100, Section 501 ("Malfunctions"), the owner/operator of a vapor loss control device that exceeds the standards of this rule shall notify the Control Officer and observe the following time schedule in ending such exceedances:

**303.1** Concentrations at or above the lower explosive limit must be brought into compliance within 24 hours of detection.

**303.2** Leak concentrations exceeding 10,000 ppm but less than 50,000 ppm as methane for vapor collection/processing equipment subject to gas-tight standard shall be brought into compliance within 5 days of detection.

**303.3** Except as the Control Officer otherwise specifies, a leak source subject to Sections 303.1 or 303.2 must be tested after presumed leak-correction within 15 minutes of recommencing use; if leak standards are exceeded in this test, the use of the faulty equipment shall be discontinued within 15 minutes until correction is verified by retesting.

**304 EQUIPMENT MAINTENANCE AND OPERATING PRACTICES:** All equipment associated with delivery and loading operations shall be maintained to be leak free, vapor tight and in good working order. Gasoline shall not be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation to the atmosphere. Purging of gasoline vapors and of JP-4 (jet petrol) vapors is prohibited.

### **305 EXEMPTIONS:**

**305.1 Less Than 120,000 Gallons Per 30-Day Period:** At bulk plants built before October 2, 1978, vapor loss control specified in Section 301.2b is not required at the outloading rack when all of the following are complied with:

- a. After April 6, 1992, the bulk plant loads less than 120,000 gallons (454,800 l) of gasoline into delivery vessels in any consecutive 30-day period. Any plant that becomes subject to all of the provisions of Section 301.2b by exceeding this threshold will remain subject to these provisions even if its output later falls below the threshold.
- b. Keep current records of amount of gasoline loaded and keep them readily accessible to the Division upon request for at least three (3) years.
- c. Load outgoing gasoline using submerged fill only.
- d. The owners or operators of the bulk plant or the owners or operators of the delivery vessel shall observe all parts of the transfer and shall discontinue the transfer if any leaks are observed.

**305.2 Opening Hatches:** When VOC vapors from organic liquids are present within a non-exempt delivery vessel, authorized government agents as well as owners/operators and their contractors may open vapor containment equipment while performing operations required by Division rules or by other statutory entities, but shall be restricted as follows unless approved in advance by the Control Officer:

- a. Wait at least 3 minutes after unloading is complete or delivery vessel has stopped before opening hatch or other vapor seal.
- b. Reclose hatch or other sealing device within 3 minutes of opening.
- c. Limit windspeed at opened hatch or other opened sealing device to not more than 3 mph (1.34 m/sec).

## **SECTION 400 - ADMINISTRATIVE REQUIREMENTS**

### **401 EQUIPMENT LEAKS:**

**401.1** The owner or operator shall also perform monthly inspections, while vapor is being transferred, for liquid and vapor leaks and for faulty equipment. In these



monthly inspections detection methods incorporating sight, sound, smell and/or touch may be used.

**401.2** A log book shall be used and shall be signed by the owner or operator at the completion of each monthly inspection for equipment leaks. A section of the log shall contain a list, summary description, or diagram(s) showing the location of all equipment in gasoline service at the facility.

**401.3** Leak detection tests shall be conducted annually by the owner of each bulk loading facility or by a consultant, at the expense of the owner. Testing shall be done according to procedures in Section 501, except that EPA Method 21 shall be used to test for leaks from a vapor collection/ processing unit and its associated piping outside the loading area. Equipment shall conform to the specifications of those test methods cited in Section 504.2. Prior to testing, the owner shall notify the Control Officer of the date, time and location of the testing. The Control Officer or his representatives shall at their discretion observe the tests.

**402 COMPLIANCE SCHEDULE:** By September 30, 1995, the owner or operator of any loading facility which requires modification subject to a requirement of Section 300 of this rule shall submit to the Control Officer for approval an emission control plan and a schedule for achieving compliance with all requirements by April 30, 1996. The plan shall specify the date of completion of each major step leading to compliance.

## **SECTION 500 - MONITORING AND RECORDS**

**501 LEAK DETECTION - TEST PROCEDURE:** During loading into or unloading out of delivery vessels, the peripheries of all potential sources of leakage at the loading facility are checked with a combustible gas detector or organic vapor analyzer (OVA) as follows:

**501.1 Pressure:** A pressure tap shall be placed in the loading facility's vapor control system, as close as possible to the delivery vessel's tank. The pressure shall be recorded periodically during testing, at least once every minute. Instantaneous maximum pressure shall be recorded either automatically or by visual observation. A pressure measurement device capable of measuring 20 inches (50.8 cm) of water pressure with a precision of 0.1 (2.5 mm) inch of water shall be calibrated. This device shall fit the tap and shall either be permanently installed or shall be kept available at all times at the facility.

**501.2 Calibration:** Within 4 hours prior to monitoring the combustible gas detector or OVA shall be calibrated with 10,600 ppm propane by volume in air for a 50 percent lower explosive limit (LEL) response.

- 501.3 Probe Distance:** The probe inlet shall be one inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be one inch (2.5 cm) from the leak source when the highest detector reading is being determined for a discovered leak. When the probe is obstructed from moving within one inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance shall be used.
- 501.4 Probe Movement:** The probe shall be moved slowly, not faster than 1.6 inches per second (4 centimeters per second). If there is any meter deflection at a potential or actual leak source, the probe shall be positioned to locate the point of highest meter response.
- 501.5 Probe Position:** The probe inlet shall be positioned in the path of the vapor flow from a leak such that the central axis of the probe-tube inlet shall be positioned coaxial with the path of the most concentrated vapors.
- 501.6 Wind:** Wind shall be blocked as much as possible from the space being monitored. The annual leak detection test required by Section 401 shall be valid only when wind speed in the space being monitored is 5 mph or less.
- 501.7 Data Recording:** The highest detector reading and location for each incidence of leakage shall be recorded along with the date and time.
- 502 COMPLIANCE INSPECTIONS:** The Control Officer, at any time, may monitor a delivery vessel vapor collection system, a loading rack's vapor loss control devices, a loading facility or a vapor collection/processing system for vapor leaks by the methods described in Section 501 of this rule or by applicable EPA Reference Methods specified in Section 504.
- 503 RECORDS RETENTION:** Records and information required by this rule shall be retained for at least three years.
- 504 COMPLIANCE DETERMINATION - TEST METHODS:** When more than one test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.
- 504.1 Vapor Collection/Processing System:** Control efficiency of a vapor collection/processing system shall be determined according to EPA Reference Method 25A or Method 25B subsequent to the Control Officer's approval of the test protocol. Leak tests to verify a gas-tight state of the equipment associated with the vapor collection/processing device, including the piping outside of the loading area, shall be conducted according to EPA Reference

Method 21. Gas volume flow rates shall be determined by Method 2B for a thermal oxidizer; otherwise, by Method 2A.

**504.2 Vapor Balance And Loading Systems:** Vapor tightness shall be determined using the method described in Section 501 of this rule.

**504.3** True Vapor Pressure shall be determined by ASTM Method 2879-83 and by temperature measurement under actual conditions using an instrument accurate to within  $\pm 1$  degree Fahrenheit or  $\pm 0.5$  degree Celsius. For purposes of recording and reporting, the Reid vapor pressure and the foregoing temperature determination may be used in conjunction with the method of American Petroleum Institute Bulletin 2517, February, 1980, to determine true vapor pressure, unless the Control Officer specifies ASTM Method 2879-83.

**504.4** Reid Vapor Pressure shall be determined by ASTM Method D 323-82 or by ASTM Method D 5191.

BLANK PAGE